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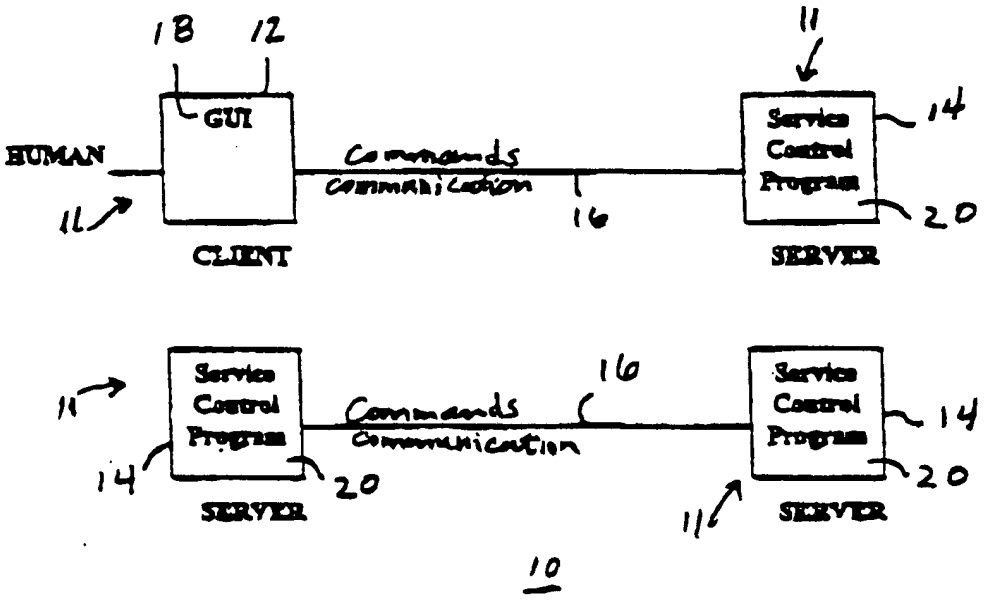

18
12
11
GUI
HUMAN
Commands
Communication
Service
Control
Program
14
16
20
CLIENT
SERVER
11
Service
Control
Program
16
Commands
Communication
14
20
SERVER
11
SERVER
10

FIG. 1

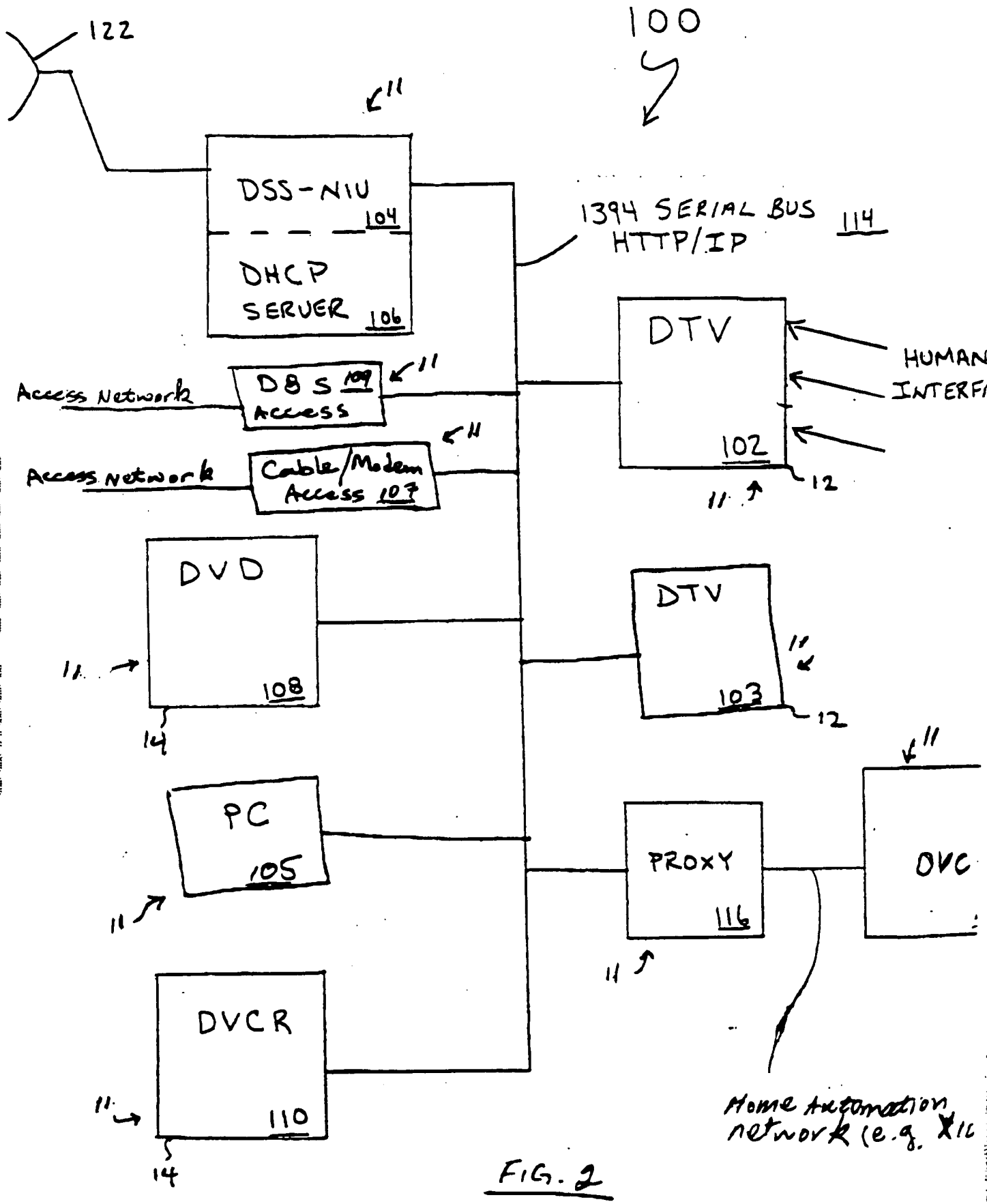

122
100
11
DSS-NIU
104
DHCP
SERVER
106
1394 SERIAL BUS
HTTP/IP
114
DTV
HUMAN
INTERFA
102
12
11
Access Network
DBS
Access
109
Access Network
Cable/Modem
Access 107
DVD
108
14
DTV
103
PC
105
PROXY
116
OVC
DVCR
110
Home Automation
network (e.g. X10

FIG. 2

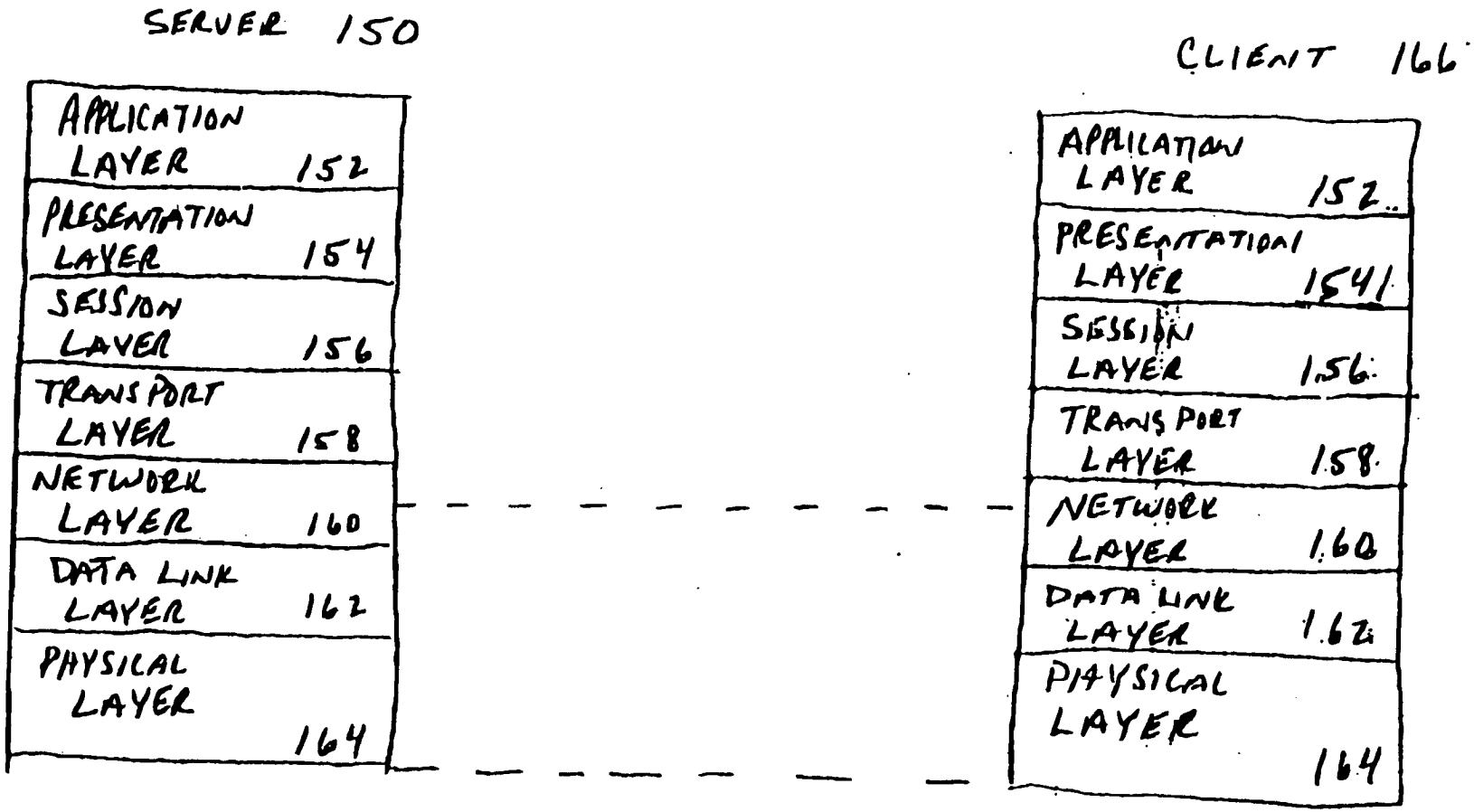
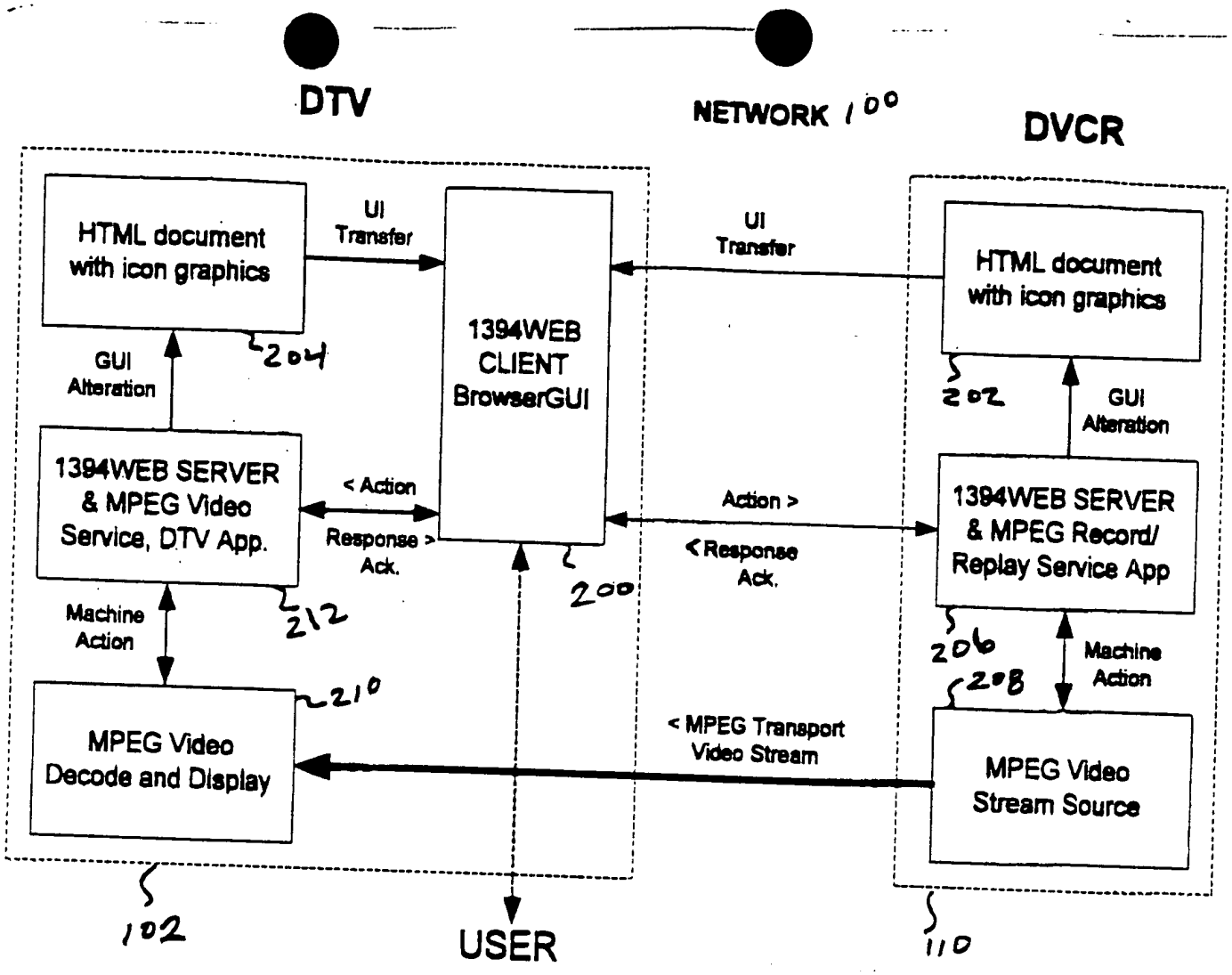

SERVER 150
APPLICATION LAYER 152
PRESENTATION LAYER 154
SESSION LAYER 156
TRANSPORT LAYER 158
NETWORK LAYER 160
DATA LINK LAYER 162
PHYSICAL LAYER 164
CLIENT 166
APPLICATION LAYER 152
PRESENTATION LAYER 154
SESSION LAYER 156
TRANSPORT LAYER 158
NETWORK LAYER 160
DATA LINK LAYER 162
PHYSICAL LAYER 164

FIG. 3


DTV
NETWORK 100
DVCR
HTML document with icon graphics
UI Transfer
1394WEB CLIENT BrowserGUI
UI Transfer
HTML document with icon graphics
204
202
GUI Alteration
GUI Alteration
1394WEB SERVER & MPEG Video Service, DTV App.
< Action
Response > Ack.
Action >
< Response Ack.
1394WEB SERVER & MPEG Record/ Replay Service App
200
212
206
Machine Action
Machine Action
208
210
MPEG Video Decode and Display
< MPEG Transport Video Stream
MPEG Video Stream Source
102
USER
110

100

FIG. 4a

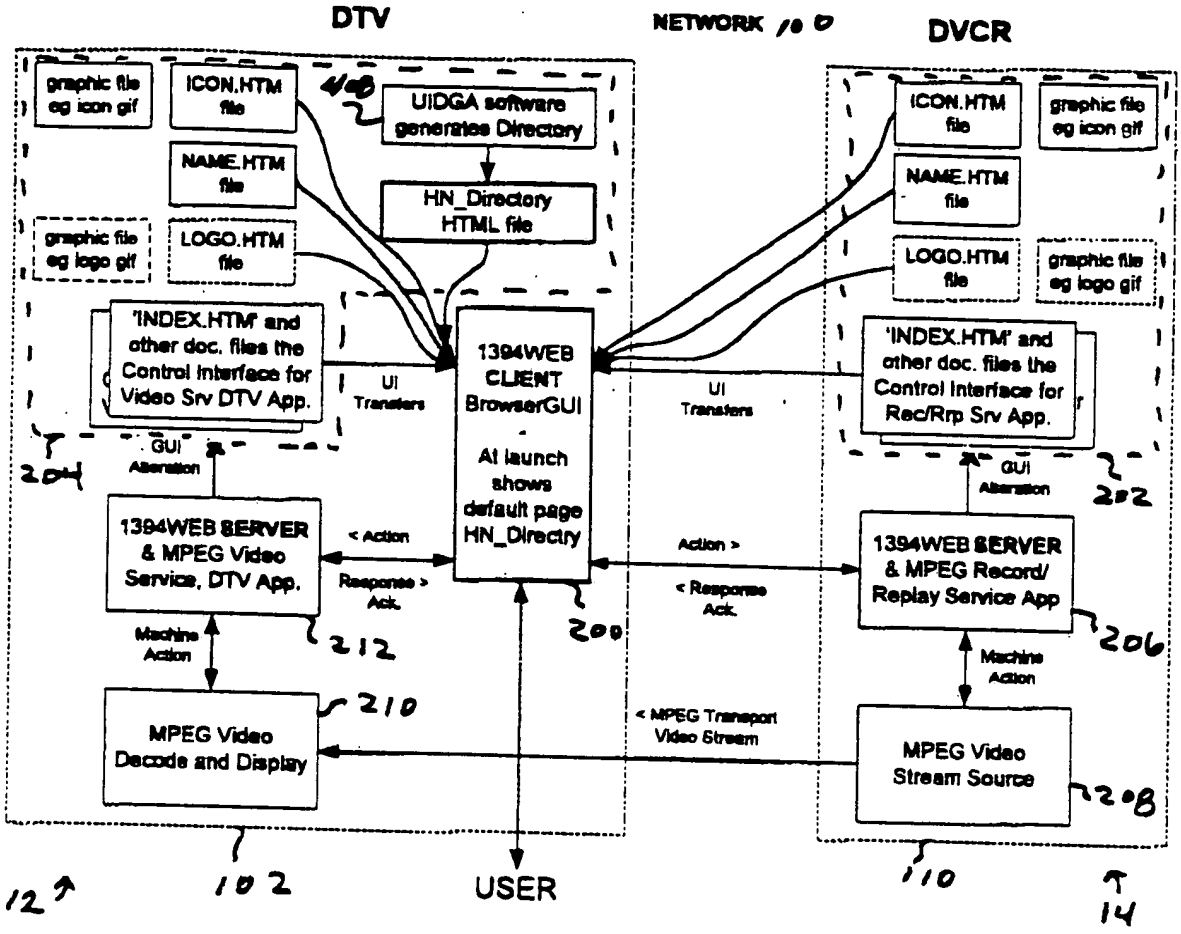
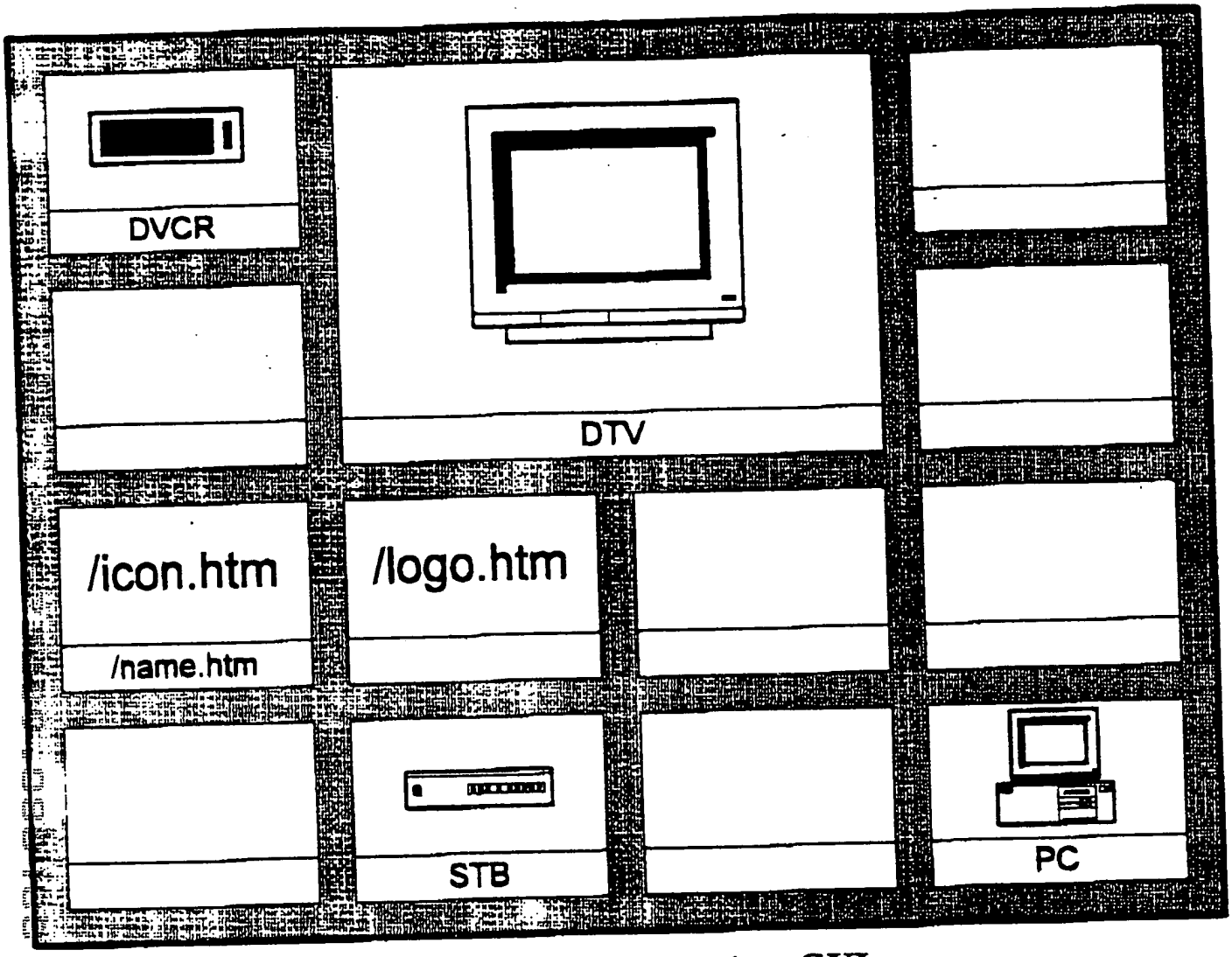

DTV
NETWORK 100
DVCR
graphic file eg icon gif
ICON.HTM file
UIDGA software generates Directory
NAME.HTM file
HN_Directory HTML file
graphic file eg logo gif
LOGO.HTM file
'INDEX.HTM' and other doc. files the Control Interface for Video Srv DTV App.
1394WEB CLIENT BrowserGUI
At launch shows default page HN_Directry
UI Transfers
GUI Alteration
1394WEB SERVER & MPEG Video Service, DTV App.
< Action
Response > Ack.
Machine Action
MPEG Video Decode and Display
< MPEG Transport Video Stream
ICON.HTM file
graphic file eg icon gif
NAME.HTM file
LOGO.HTM file
graphic file eg logo gif
'INDEX.HTM' and other doc. files the Control Interface for Rec/Rrp Srv App.
Action >
< Response Ack.
1394WEB SERVER & MPEG Record/ Replay Service App
Machine Action
MPEG Video Stream Source
USER
12
102
110
14
204
212
210
200
202
206
208
100

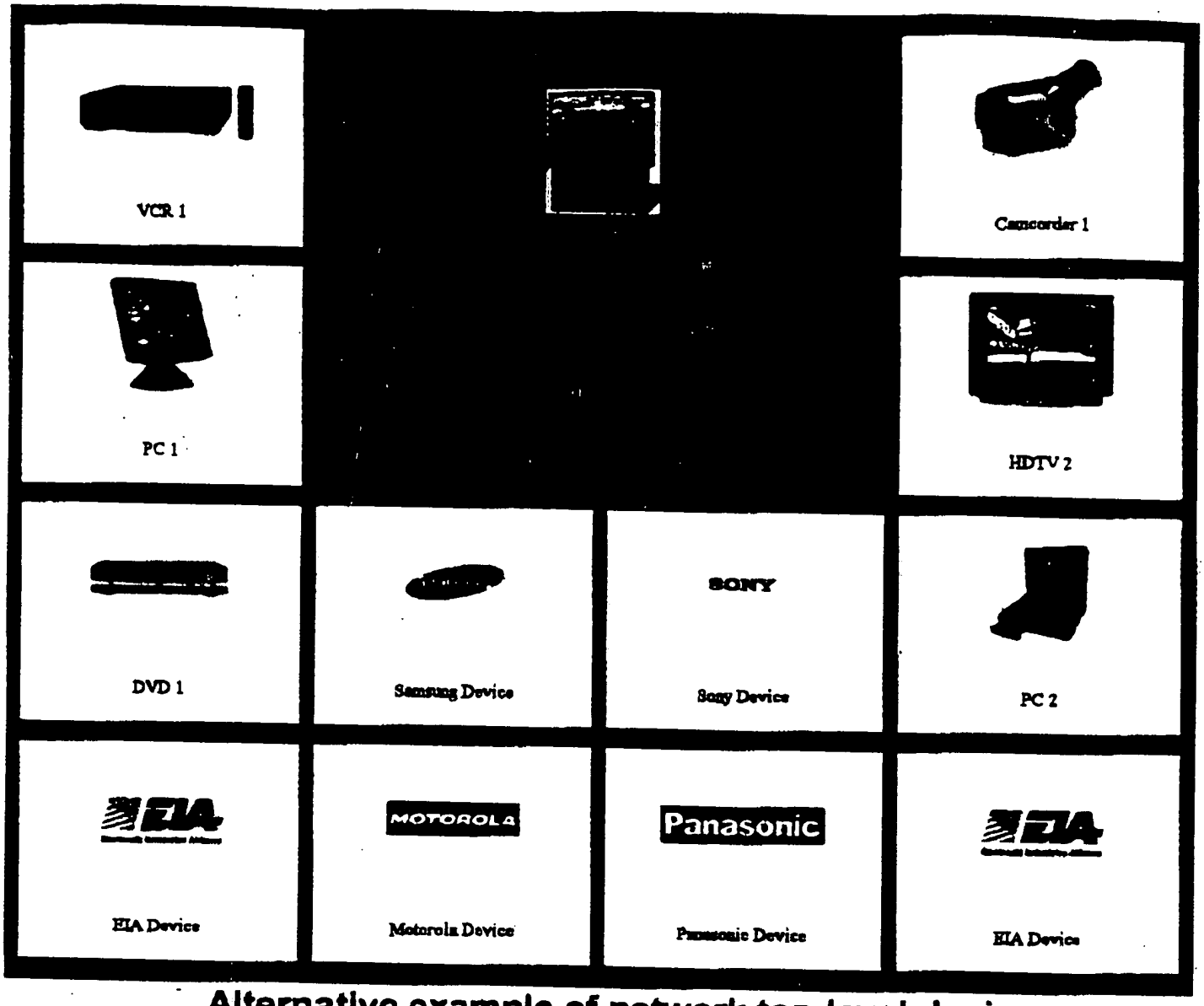
FIG. 4b



Example Network Top-level Devices GUI

220

FIG. 5



Alternative example of network top-level devices GUI

220

FIG. 6

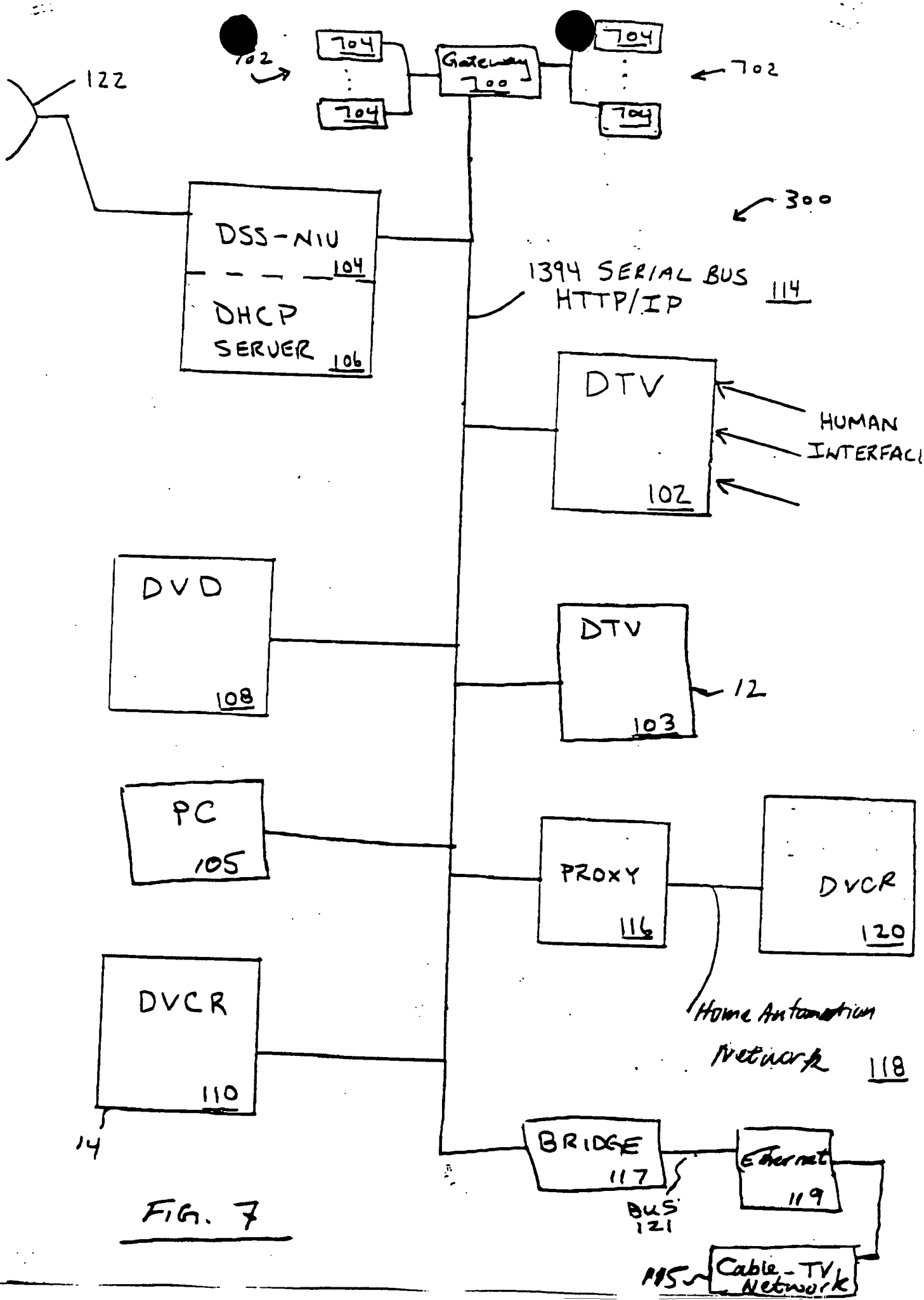
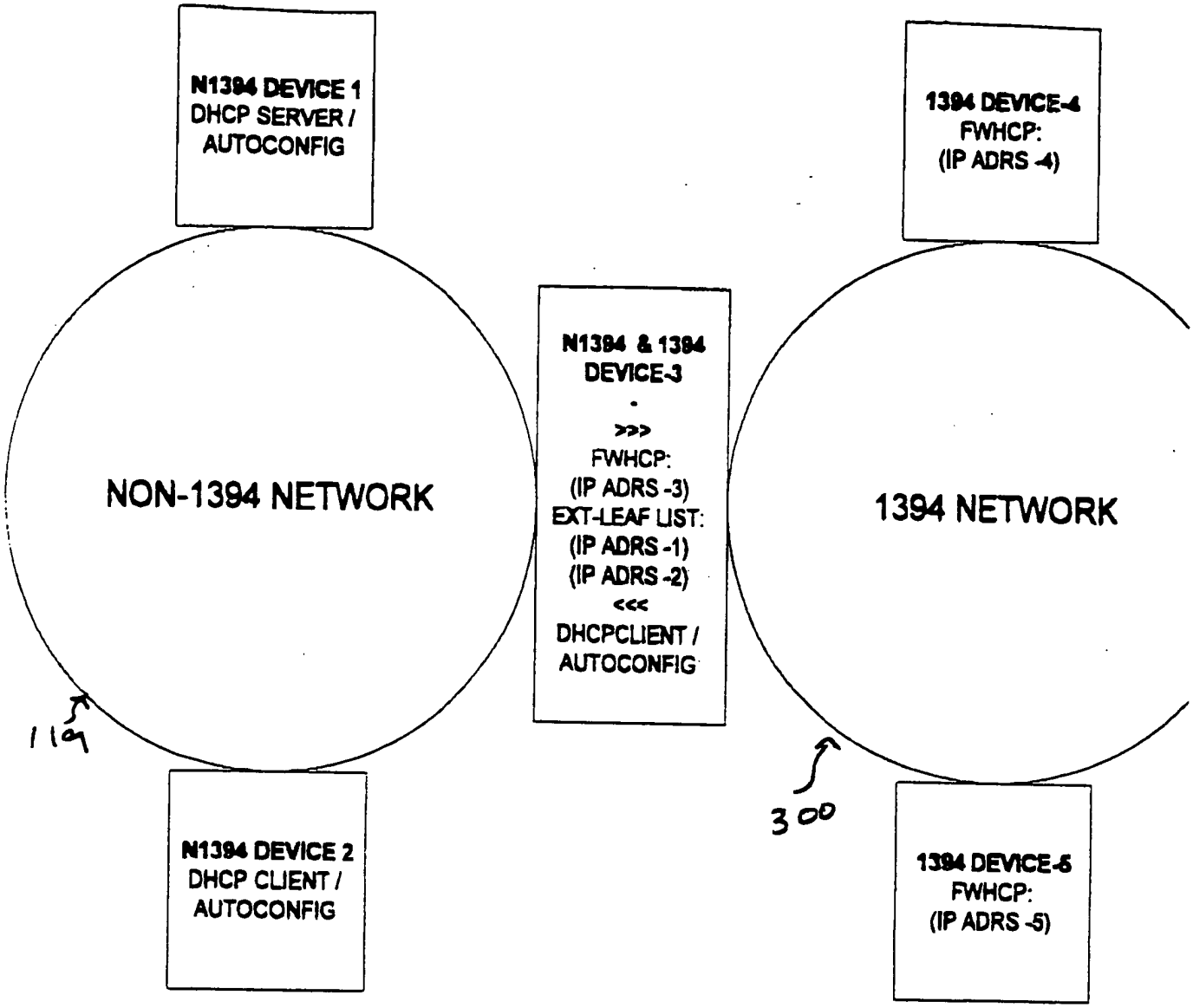

122
702
704
704
Gateway 700
704
704
702
300
DSS-NIU
104
DHCP SERVER
106
1394 SERIAL BUS HTTP/IP
114
DTV
102
HUMAN INTERFACE
DVD
108
DTV
103
12
PC
105
PROXY
116
DVCR
120
DVCR
110
Home Automation Network
118
14
BRIDGE
117
BUS 121
Ethernet
119
115
Cable-TV Network

FIG. 7



1394 and Non-1394 Network Scenario for address management

FIG. 8

ALL DEVICES

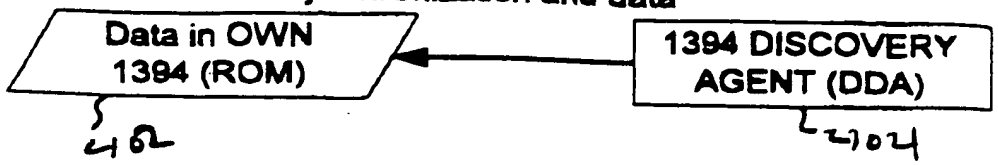


Fig. 9a

DEVICES WITH IP CONFIG. AGENT

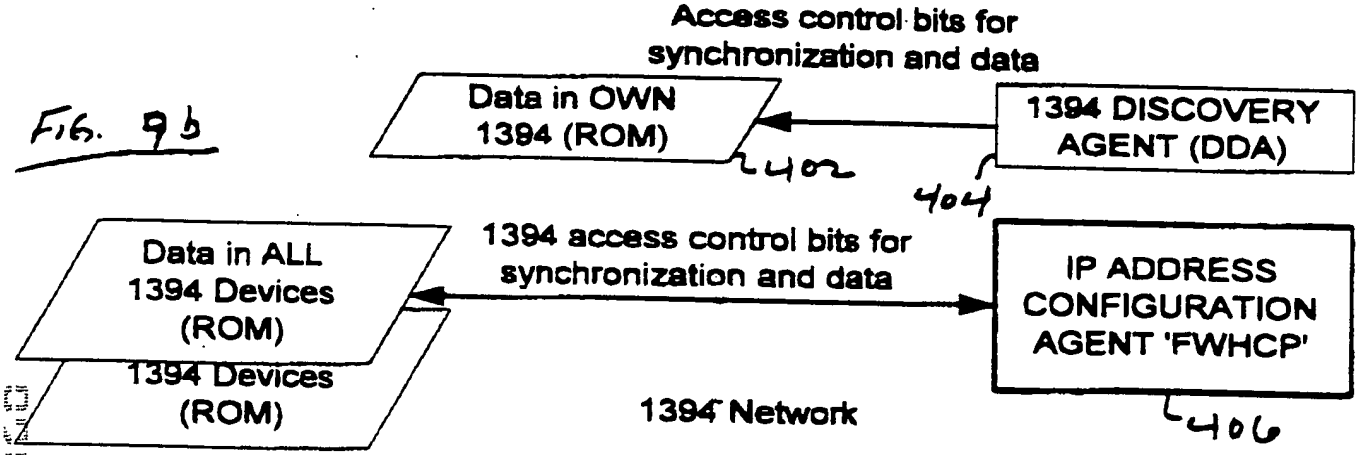


Fig. 9b

DEVICES WITH USER INTERFACE

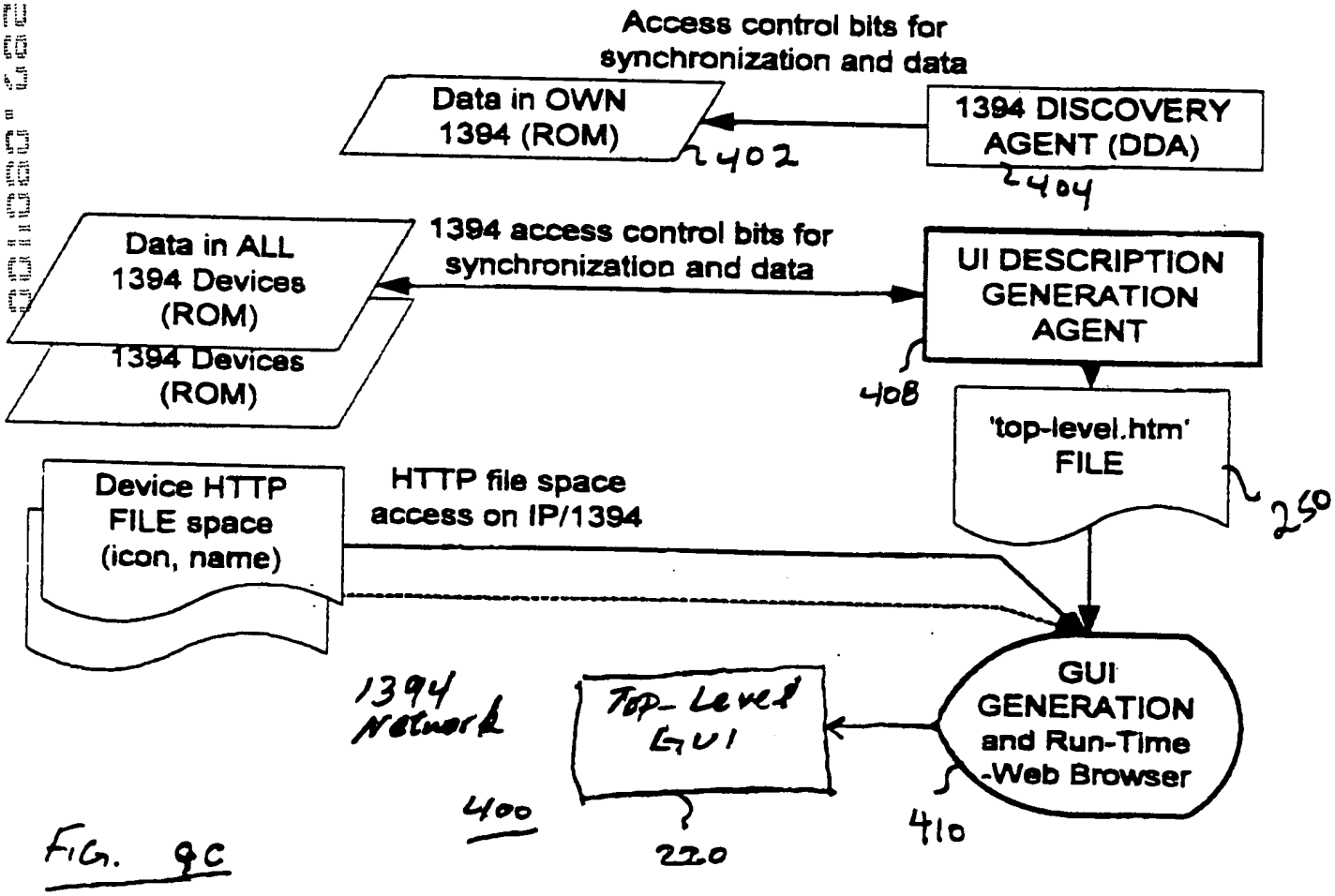


Fig. 9c

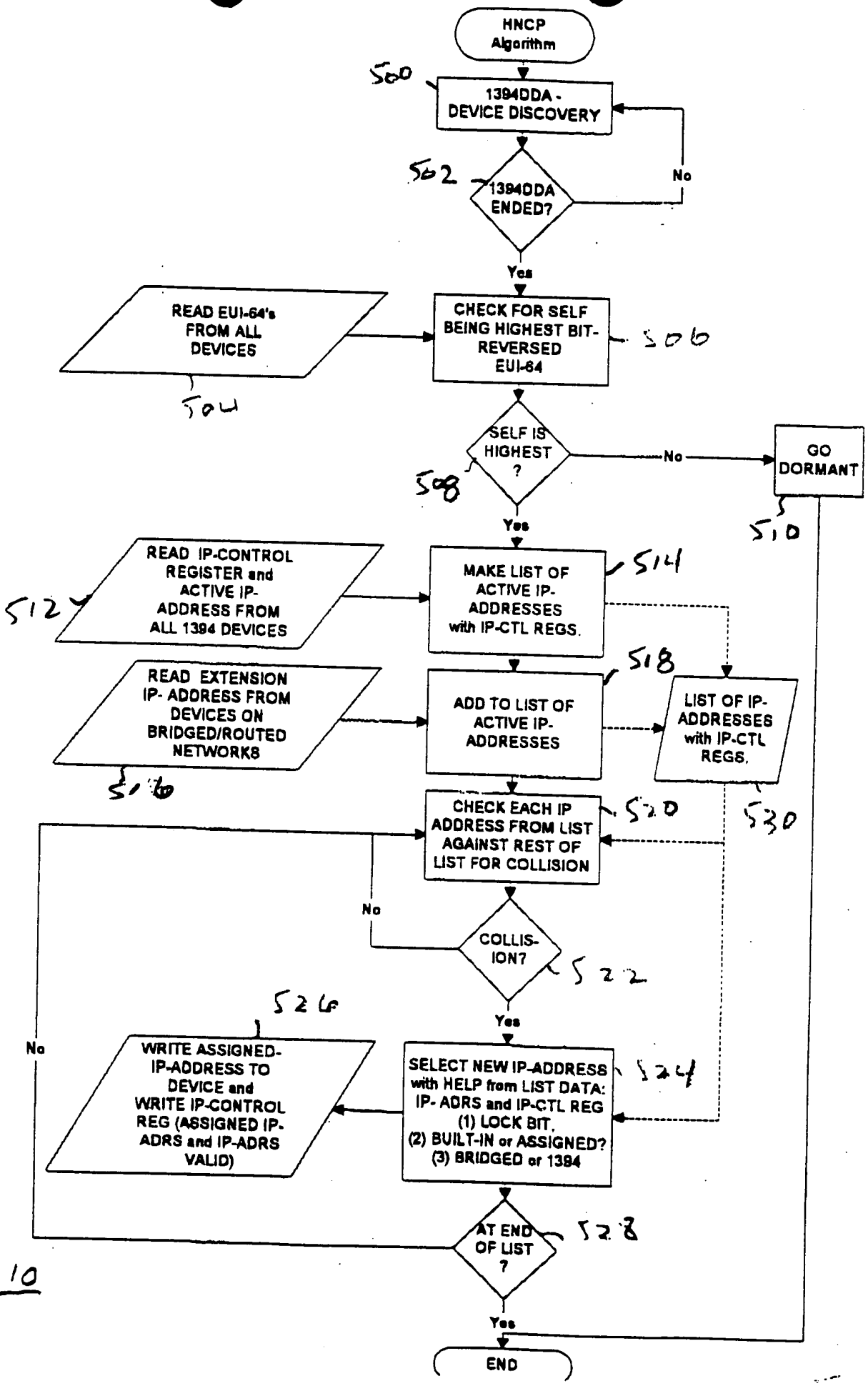

HNCP Algorithm
500
1394DDA - DEVICE DISCOVERY
502
1394DDA ENDED?
No
Yes
READ EUI-64's FROM ALL DEVICES
504
CHECK FOR SELF BEING HIGHEST BIT-REVERSED EUI-64
506
SELF IS HIGHEST ?
508
No
GO DORMANT
510
Yes
READ IP-CONTROL REGISTER and ACTIVE IP-ADDRESS FROM ALL 1394 DEVICES
512
MAKE LIST OF ACTIVE IP-ADDRESSES with IP-CTL REGS.
514
READ EXTENSION IP- ADDRESS FROM DEVICES ON BRIDGED/ROUTED NETWORKS
516
ADD TO LIST OF ACTIVE IP-ADDRESSES
518
LIST OF IP-ADDRESSES with IP-CTL REGS.
530
CHECK EACH IP ADDRESS FROM LIST AGAINST REST OF LIST FOR COLLISION
520
No
COLLISION?
522
Yes
526
No
WRITE ASSIGNED-IP-ADDRESS TO DEVICE and WRITE IP-CONTROL REG (ASSIGNED IP-ADRS and IP-ADRS VALID)
SELECT NEW IP-ADDRESS with HELP from LIST DATA: IP- ADRS and IP-CTL REG (1) LOCK BIT, (2) BUILT-IN or ASSIGNED? (3) BRIDGED or 1394
524
AT END OF LIST ?
528
Yes
END

FIG. 10

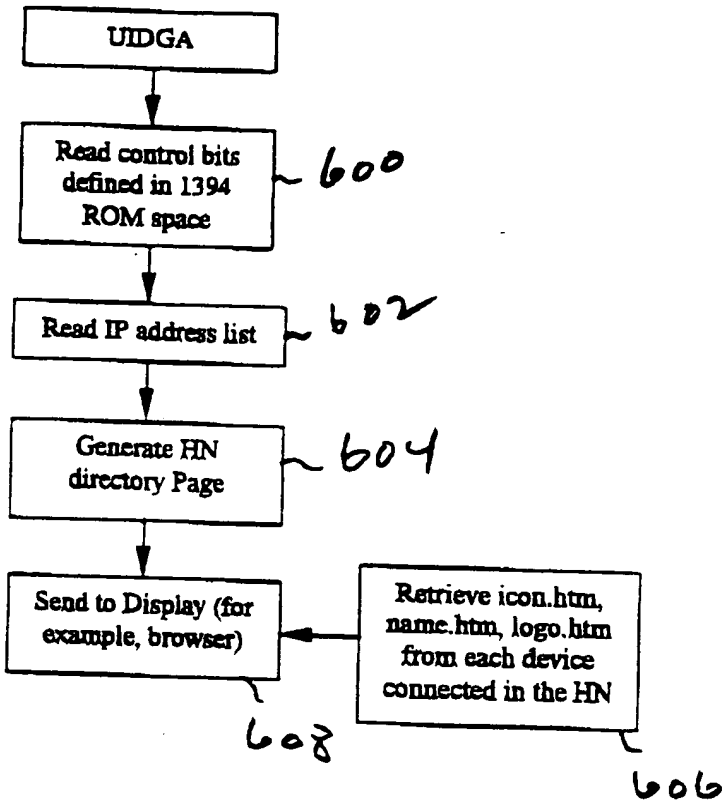
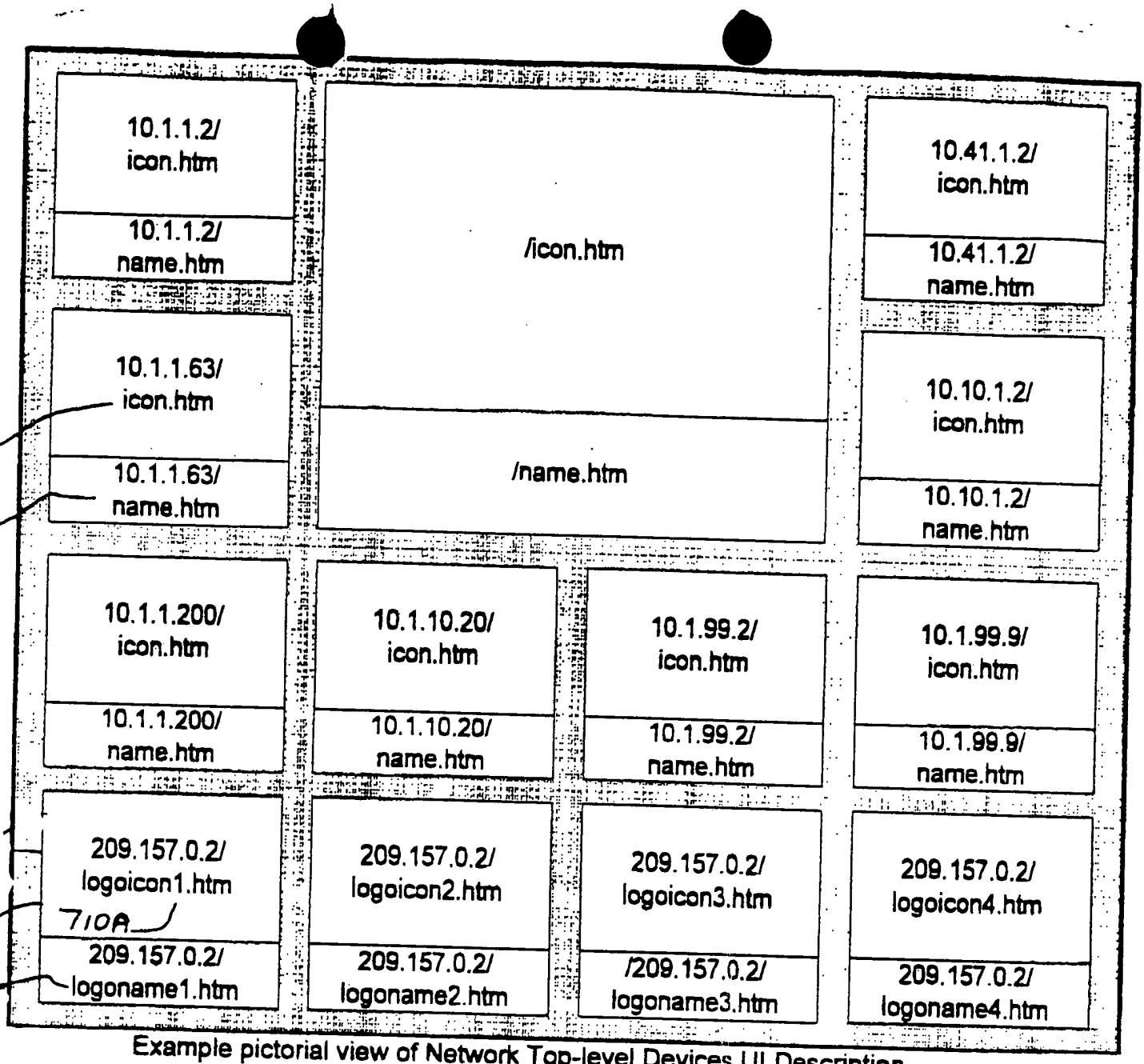

UIDGA
Read control bits defined in 1394 ROM space
600
Read IP address list
602
Generate HN directory Page
604
Send to Display (for example, browser)
608
Retrieve icon.htm, name.htm, logo.htm from each device connected in the HN
606

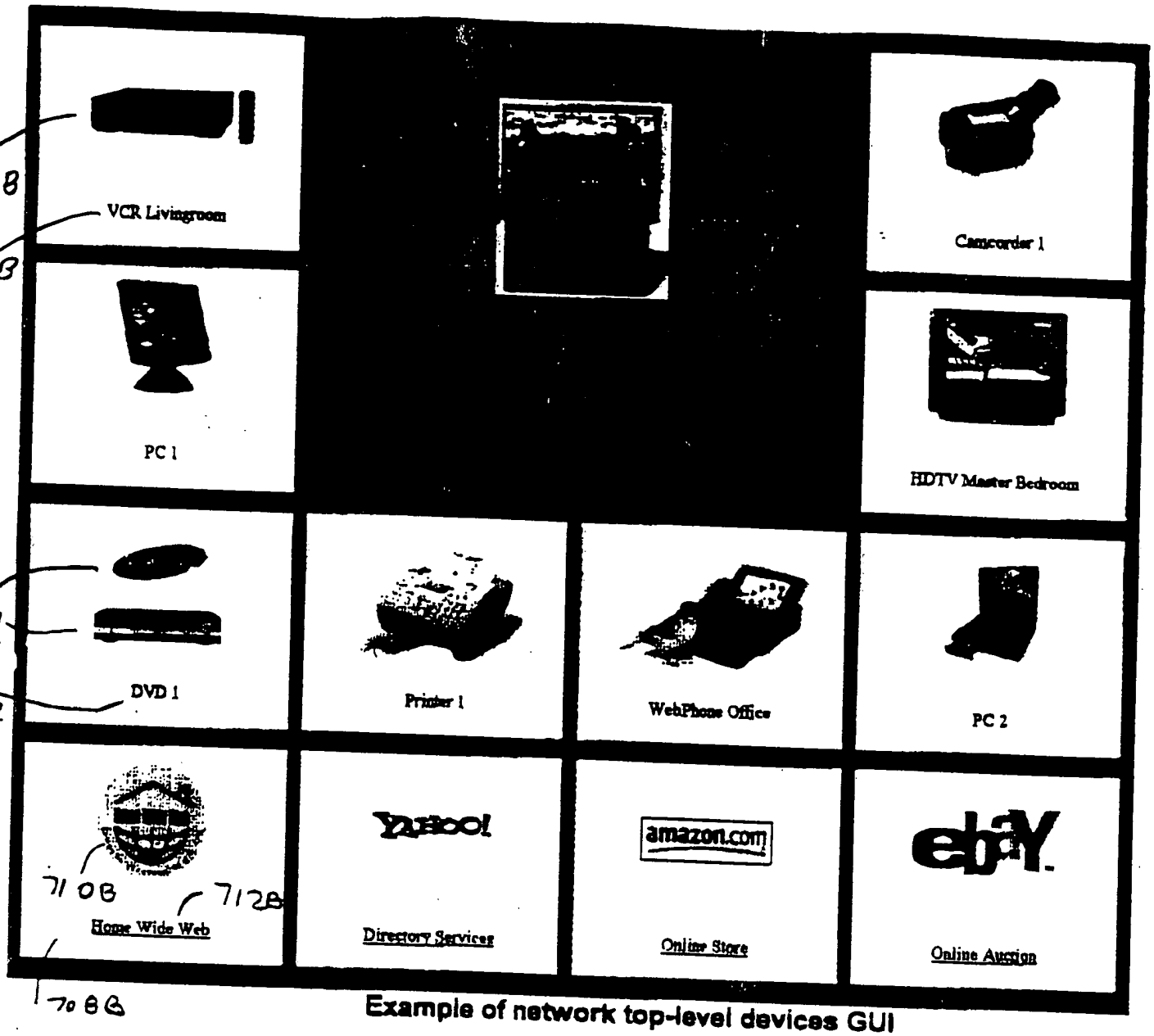
FIG. 11



Example pictorial view of Network Top-level Devices UI Description

250

FIG. 12



Example of network top-level devices GUI

220

FIG. 13